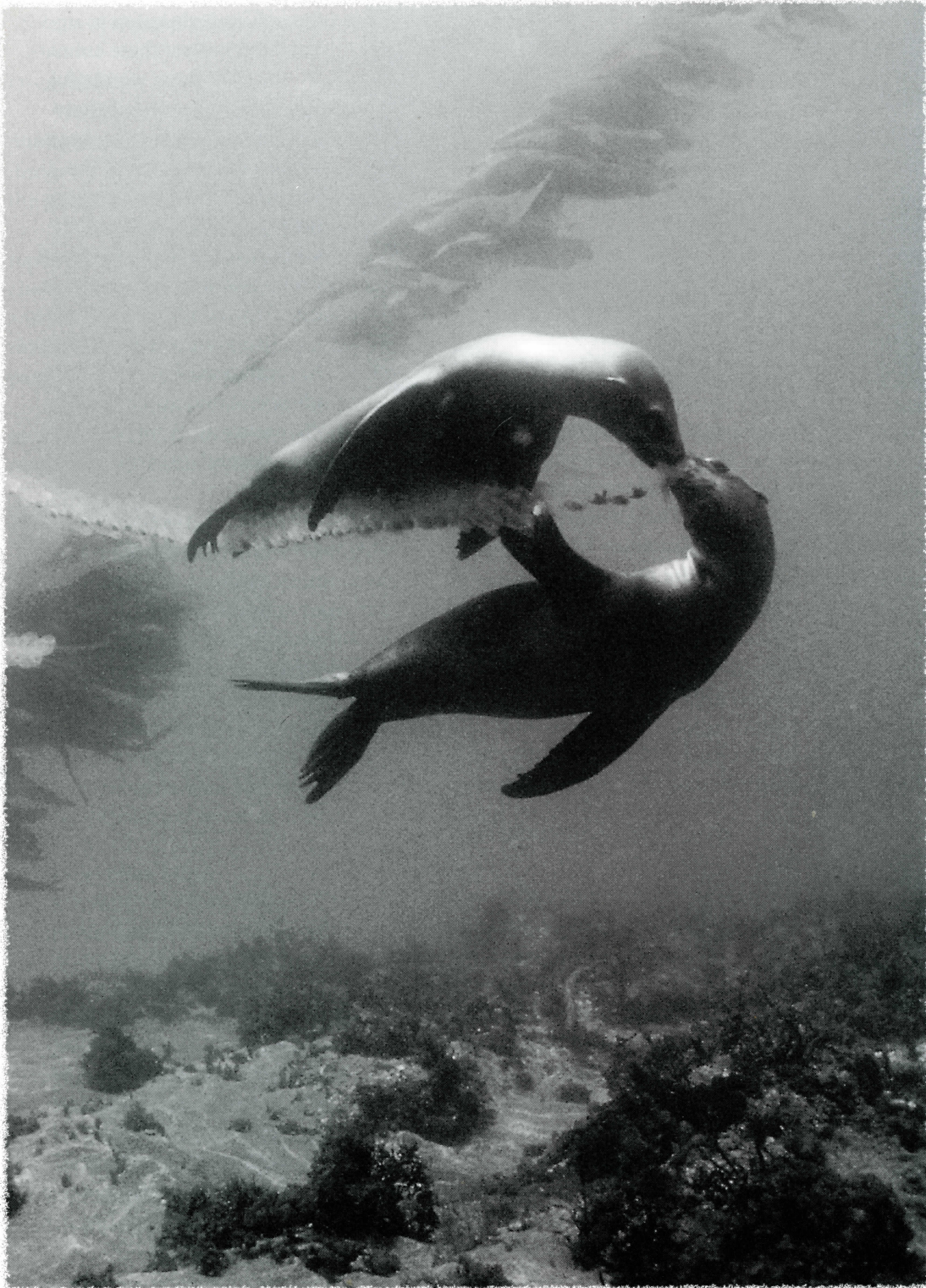


Alolkooy

Pinnipeds in CINMS



**The
Publication
of the
Channel
Islands
Marine
Sanctuary
Foundation**

*Fall
1999*

*Volume 12
Number 2*

Inside

*30 Years of Pinniped
Research at San Miguel*

Pacific Harbor Seals

*Northern Elephant
Seals*

*Santa Barbara Marine
Mammal Center*

*Sanctuary Advisory
Council*

*Research: Diet of
California Sea Lions*

Northern Elephant Seals: Southern California Beachmasters

By Brent S. Stuart, Ph.D., J.D.

Northern elephant seals dominate space on San Miguel Island, and more recently parts of Santa Rosa Island, during the winter breeding season and again in spring and summer when they are molting.

When CINMS was established in the early 1980s, elephant seals were mostly restricted to the western end of San Miguel Island with about 3,500 pups born annually. Today about 14,000 elephant seal females give birth at San Miguel Island between December and February and several hundred at Santa Rosa Island, and their numbers continue to increase.

In the nineteenth century, northern elephant seals were extinguished from Southern California either by commercial hunters or perhaps earlier by the Chumash and Nicoleño. The last seals were believed killed at Isla de Guadalupe by scientific collectors in the 1890s, and the species was declared extinct. But since then the northern elephant seal has presented one of the longest running recoveries of any large mammal.

Elephant seals haul out on the Channel Islands twice each year, in winter to give birth and mate and again between April and September to shed their hair, or molt.

Juveniles are absent during the breeding season but the first to haul out to molt in April. Females return to shore in May to molt, followed by adolescent males in June and adult males in July and August. Some juveniles and non-reproductive females may haul out in October to rest.

Until the late 1980s, it was only at these times that the seals were available to study, and their whereabouts during the rest of the year was a mystery. But the development of remote tracking technology has produced startling discoveries about their deep diving behavior and migrations.

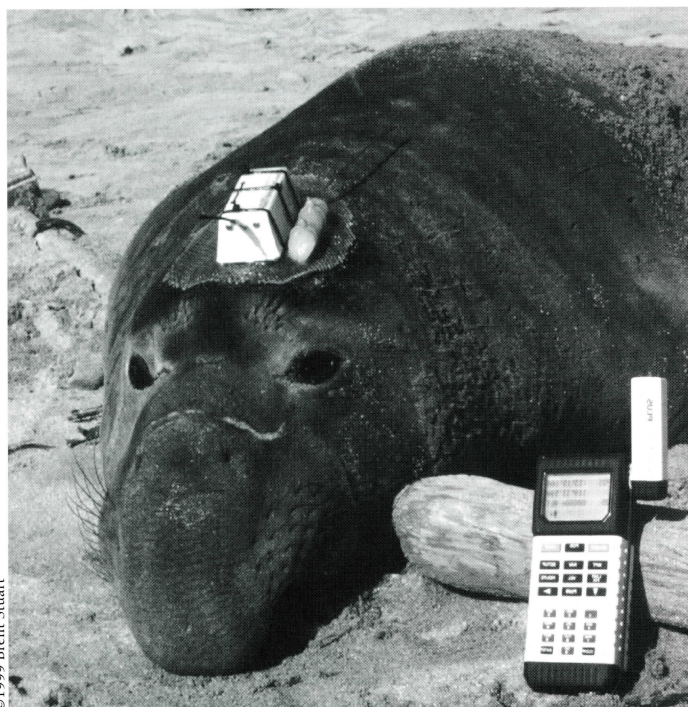
Seals spend about eight to ten months each year in the northeast Pacific Ocean, diving and foraging continuously. They make two migrations covering about 10,000 to 15,000 miles and spend very little time in CINMS. The seals remain submerged, holding their breaths, about 85% of the time at depths of 1,000 to 2,000 feet; the deepest dive recorded for adult males and females is around 5,000 feet, and the longest is about two hours. The deep-diving and highly migratory habits of northern elephant seals are probably the key reason why the species survived human efforts to extinguish them.

During their migrations the seals store resources in the form of blubber reserves, which sustain them when they are ashore for one to three months. Seals do not eat when on land and lose around 20 to 40% of their body mass, then spend the rest of the year regaining it. They mostly eat deep-dwelling squid and some bioluminescent fish. Their eyes are adapted for seeing in low light conditions, and they likely key in on light signals used by their prey to attract mates or camouflage themselves from other predators.

So far, there is no evidence that the century-long growth of the elephant seal population will end soon. There is still much suitable breeding space at Santa Rosa and Santa Cruz islands, though space at San Miguel, San Nicolas and Santa Barbara islands is approaching saturation. Food does not appear to be a limiting factor, though little is known of the deep water communities where elephant seals forage.

There is no evidence that competitive interactions with California sea lions, northern fur seals, or harbor seals are affecting elephant seal populations. Generally, they feed on different prey, in different habitats, at different times so the overlap in foraging habits appears to be fairly small. Nonetheless, the future numerical composition of the pinniped community in and near the Channel Islands is difficult to predict.

Dr. Brent S. Stewart is a Senior Research Biologist at the Hubbs-Sea World Research Institute in San Diego. He has been studying the ecology of California pinnipeds since 1978.



©1999 Brent Stuart

This adolescent male elephant seal has a tracking device (a satellite-linked radio transmitter) glued to the top of its head. An early GPS receiver in the foreground is used to calibrate locations determined by the radio transmitter.